



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,541	12/28/2005	Francesco Pessolano	NL030781	3960
24737 7590 02/25/2009 PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510				
EXAMINER				
DUNN, DARRIN D				
ART UNIT		PAPER NUMBER		
2121				
MAIL DATE		DELIVERY MODE		
02/25/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/562,541

Applicant(s)

PESSOLANO ET AL.

Examiner

DARRIN DUNN

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 2-6, 9 and 12-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 7-8, 10-12, and 17-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action is responsive to the communication filed on 02/09/2009.
2. Claims 1-25 are pending in the application. Claims 2-6, 9, and 12-16.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 7-8, 10-11, 17-19, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirano (JP2001056143).
5. As per claim 1, Hirano teaches a method of controlling an electronic device, comprising the steps of:
 - detecting brainwaves of a user ([0005] e.g., electroencephalograph);
 - in response to detecting theta waves from the user, at least one of
 - reducing a volume of sound output by the electronic device, reducing a quality of sound output by the electronic device, reducing a size of an image output by the electronic device, and reducing a quality of an image output by the electronic device ([0003], [0006], [0008], [0009 -whizzing sound is reduced], [0013-14] e.g. theta wave, i.e., beginning of sleep and herein referred to as shallow sleep, is analyzed. Responsive to the theta wave, a volume of a stereo is reduced in the same manner as that of the air conditioner. Hirano expressly teaches that the system is applicable to a stereo and therefore the functioning of reducing an

output of the air conditioner responsive to the theta wave equates to reducing the sound level of a stereo to accommodate a shallow sleep stage. In addition, reducing the air flow (e.g., whizzing sound) of the air conditioner effectuates reducing the volume of sound output by an electronic device as well);

in response to detecting delta waves or a REM state, switching the electronic device to one of off and a hibernation mode of reduced power consumption ([0002], [0006], [0014] e.g., a delta wave is correlated with deep sleep. When a user's sleep deepens to this state, the air conditioning can be turned OFF)

6. As per claim 7, Hirano teaches a computer readable medium which stores a computer program which controls a programmable device to carry out a method as claimed in claim 1 ([0005])
7. As per claim 8, Hirano teaches an electronic device, comprising:
a receiver which receives, from a detector, a detection signal indicative of a sleep state of a user ([0005] e.g., receiver – A/D: detector – electroencephalograph); and
a control unit ([0005] e.g., microprocessor) which:

via the receiver, receives to receive the detection signal from the detector ([0005] e.g., input means is described)), determines whether, based on the received detection signal, the user is asleep, probably asleep, or awake ([0005-0008] e.g., an analysis procedure is outlined to determine theta (e.g., probably asleep) |delta (deep sleep), in response to determining that the user is probably asleep (e.g., theta detection), controls the electronic device to at least one of reduce a volume of sound output by the electronic device ([0013-14] e.g., volume is reduced | whizzing sound is reduced), reduce a quality of sound output by the electronic device, reduce a

size of an image output by the electronic device, and reduce a quality of an image output by the electronic device, and

in response to determining that the user is asleep switches the electronic device to a reduced power consumption mode ([0014] e.g., in response to the delta wave, the air conditioning is turned off, i.e., reduced power consumption. One mode is that of being fully on, a second mode is a reduced output stage (whizzing reduction), and an OFF stage. These correspond to modes of operation. Therefore, turning the power off is a reduced stage of power consumption. Broadly speaking, turning power off is a 100% power reduction)

8. As per claim 11, Hirano teaches the electronic device as claimed in claim 8, further including:

an output means which generates at least one of an audio signal and a display signal ([0014] e.g., the system is applicable to a stereo and therefore an audio signal is controlled)

9. As per claim 17, Hirano teaches an electronic device including a processor programmed to perform the steps claimed in claim 1 ([0005])

10. As per claim 18, Hirano teaches the electronic device as claimed in claim 8, further including:

a brainwave detector which measures brainwaves of the user and generates the detection signal based on the detected brainwaves ([0005] e.g. an electroencephalograph) and the control unit ([0005] e.g., microprocessor) reduces the sound volume ([0013-14] e.g., reducing whizzing) or quality or the image size or quality in response to a detection signal indicative of a first detected brainwave state (e.g., theta waves) and switches to the reduced power consumption

Art Unit: 2121

mode (e.g. OFF (100% power reduced) vs. ON vs. reduced air flow) in response to a detection signal indicative of a second brainwave state (e.g., delta waves), the first brainwave state being different from the second brainwave state (e.g., delta vs. theta)

11. As per claim 19, Hirano teaches an electronic device comprising:

a brainwave detector which measures brainwaves of a user of the electronic device and generates a detection signal based on the detected brainwaves ([0003-0005] e.g., an electroencephalograph is employed to detect brainwaves), ;

a receiver for receiving the detection signal from the brainwave detector ([0005] e.g., A/D), and

control unit ([0005] e.g., microprocessor) which:

receives the detection signal from the receiver, determines whether the user is probably asleep by identifying from the detection signal a first brainwave pattern that is indicative of at least one of relaxed with eyes closed, sleepy, already sleeping, or in a sleep transition ([0005-0006] e.g., theta waves are detected, i.e., sleepy), determines whether the user is asleep by identifying a second brainwave pattern indicative of the user being in a deep sleep or REM sleep ([0005-0006] e.g., delta waves),

in response to determining that the user is probably asleep, controls the electronic device to at least one of reduce a volume of sound output by the electronic device, reduce a quality of sound output by the electronic device, reduce a size of an image output by the electronic device, and reduce a quality of an image output by the electronic device ([0013-14] e.g., responsive to theta waves the whizzing sound of the air conditioner is reduced, volume is reduced, and if applied to a stereo, the volume of the stereo is reduced), and

switches the electronic device to a mode of reduced power consumption in response to determining that the user is sleep ([0014] e.g., responsive to delta waves, the device is turned OFF (e.g., 100% power reduction. Modes are interpreted as an operating state. One is ON, OFF, and an intermediary REDUCED air flow. It is recommended to claim a power saving mode such as hibernation or suspended mode of operation)

12. As per claim 21, teaches the electronic device as claimed in claim 19, wherein the control unit determines whether the user is probably asleep based on whether the brainwave detection signal is indicative of theta or alpha waves ([0005-0008], [0013-14]) and determines whether the user is asleep based on the brainwave detection signal being indicative of delta waves or REM sleep ([0005-0008, [0013-14])

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
15. Claims 10, 20, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano (JP2001056143) in view over Ogino (USPN 5479939)
16. As per claim 10, Hirano does not teach a motion detector. Ogino teaches a motion detector ([Figure 3-element 4])

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to modify Hirano to include a motion detector. Hirano pertains to detecting a sleep state of a user to control the output of an electronic device. Ogino teaches a motion detector to determine whether a user is asleep to control an electronic device. Therefore, it would have been obvious to include a motion detector as a means of further ascertaining the sleep state of a user.

17. As per claim 20, Ogino teaches a detector which outputs a second detection signal based on detected motion ([Figure 3], [COL 1 lines 20-25], [COL 2 lines 32-40]); and, wherein the control unit determines whether the user is probably asleep based on the motion detection signal ([Figure 5]), and

determines whether the user is asleep based on the motion detection signal ([Figure 5 – probability of sleep as a function of duration of quiet sleep state], [COL 2 lines 38-40])

However, Hirano does not teach that a user is probably asleep or asleep based on both a brainwave detection signal and a motion detection signal. Hirano teaches that both a deep sleep and near sleep stage are detected via brainwaves ([0005], [0013-14] e.g., a control unit is provided for that measures the brainwaves of the user. The theta wave is interpreted as a shallow sleep state and therefore it is more likely than not the user is transitioning into a deeper sleep state. A delta wave is measured indicating a deeper sleep) Ogino teaches that a user may be

asleep or sleeping based upon measuring user motion over time ([Figure 5] e.g., a low probability of sleep ($< 60\%$) corresponds to probably asleep whereas a high probability ($> 80\%$) corresponds to being asleep.

Therefore, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to determine whether the user is probably asleep and actually sleeping based on both motion and brainwaves. In effect, using both motion and brainwave detection signals comprise multiple ways of ascertaining a particular sleep state of a user. Since measuring both motion and brainwaves provides a more detailed understanding of a user's particular state, it would have been obvious to implement both to understand a user's behavior and particular sleep patterns.

18. As per claim 23, Hirano teaches at least one of reducing a volume of sound output by the electronic device, reducing a quality of sound output by the electronic device, reducing a size of an image output by the electronic device, and reducing a quality of an image output by the electronic device ([0013-14]). Hirano does not teaches determining whether movement occurs for a predetermined time and in response to no movement being detected for a predetermined time, reducing the output level of an electronic device.

Ogino teaches measuring movement of a person for a predetermined time ([ABSTRACT], [Figure 4], [Figure 5] [COL 7 lines 20-42]). Ogino teaches the probability of a user being asleep based on motion.

Thus, at the time the invention was made, one of ordinary skill in the art would have motivation to measure motion for a predetermined time and reduce the output power level of a device. Hirano teaches reducing the output level of a device ([0013-14]) via measuring

brainwaves to reduce the amount of external noise to accommodate a shallow sleep state (theta). Ogino teaches that motion correlates to various sleep states (e.g., probability of sleep). Since a user is more likely to move as to adjust themselves for greater comfort prior to entering a deep sleep state, it would have been obvious to reduce the sound output, as taught by Hirano to facilitate a deeper sleep state by reducing external noise. Moreover, rough body movement, as taught by Ogino, is not indicative of a peaceful state. Thus, by reducing sound output, as taught by Hirano, a user is more apt to enter a quiet state by reducing the level of distracting noises (e.g., whizzing sounds | stereo output levels) The purpose of reducing external disturbances is a way of facilitating the transition of a shallow sleep state to a deeper sleep state. Moreover, in combination with Hirano, detecting brainwaves is a means of verifying that the user is entering a deeper sleep state and would not inadvertently lower the volume when the user happens to be motionless but not attempting to sleep.

19. Claims 22, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano (JP2001056143) in view over Lidow (USPN 4228806)

20. As per claim 22, Hirano does not teach a pressure sensor. Lidow teaches a pressure sensors to detect a physiological state ([COL 5 lines 39-45], [COL 1 lines 10-20] e.g., blood pressure is a physiological state and therefore obvious to use a sensor)

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to measure the blood pressure of a person as a means of detecting a sleep state. Hirano teaches detecting a sleep state via brainwaves. Lidow teaches measuring brainwaves in addition to blood pressure to ascertain a sleep state. Therefore, it would have been obvious to further measure the blood pressure via a sensor to further ascertain whether a user is asleep.

21. As per claims 24 and 25, Hirano teaches the electronic device as claimed in claim 8 with the exception that an REM sleep state is not measured. Hirano teaches the following limitations:

a brainwave detector which details and differentiates among theta waves, delta waves ([0002-0008]); and

wherein the control unit controls the electronic device to:
in response to the detector detecting the theta waves, at least one of reduce the volume of the sound output by the electronic device, reduce the quality of the sound output by the electronic device, reduce the size of the image output by the electronic device ([0013-14]), and reduce the quality of the image output by the electronic device; and

in response to the detector detecting at least one of the delta waves and the REM sleep state, switching the electronic device to the reduced power consumption mode ([0013-0014] e.g., OFF, i.e., 100% reduced power vs. a power ON mode or an intermediary mode of reduced volume)
Lidow teaches detecting an REM sleep state ([COL 1 lines 5-30])

Therefore, it would have been obvious to measure REM (rapid eye movement) to detect a deep sleep state of a user. Hirano teaches measuring delta waves to detect a deep sleep state. Lidow teaches detecting REM to detect a sleep state. Since there are various states of sleep, it would have been obvious to detect all states to more accurately control an electronic device.

Response to Amendment

22. The amendment, filed on 12/23/2008, has been entered.

Response to Arguments

23. Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

4585011 – eye movement and corresponding brainwaves (e.g., motion claims)

5280791

6491647

2002/0101354 - level of drowsiness can be monitored by measuring rate of eye blink (e.g., motion claims)

JP2001-206062

JP2004-290470

JP11022692

JP04256732

**JP03155832 – sound volume adjusting portion (e.g., lowering volume) in light of theta and delta waves

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DARRIN DUNN whose telephone number is (571)270-1645. The examiner can normally be reached on EST:M-R(8:00-5:00) 9/5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DD
02/16/09

/Albert DeCady/
Supervisory Patent Examiner
Art Unit 2121